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JVC HV-34LH21, HV-34LH21/E SERVICE MANUAL

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SERVICE MANUAL

COLOUR TELEVISION

HV-34LH21, HV-34LH21/E, HV-34LH51/S, HV-34LH71/G

BASIC CHASSIS
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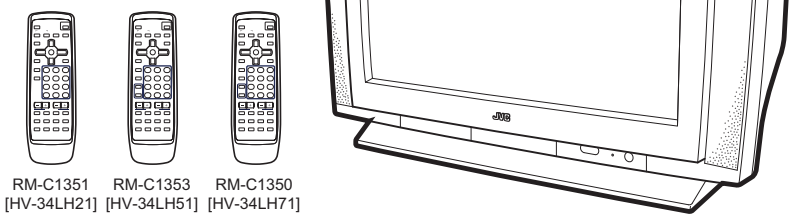

RM-C1351 [HV-34LH21] RM-C1353 [HV-34LH51] RM-C1350 [HV-34LH71]

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No.52200
2003/11

3.3 MEMORY IC REPLACEMENT

3.3.1 MEMORY IC

This TV use memory IC.

In the memory IC, there are memorized data for correctly operating the video and deflection circuits.

When replacing memory IC, be sure to use IC written with the initial values of data.

3.3.2 PROCEDURE FOR REPLACING MEMORY IC

(1) Power off
Switch the power off and disconnect the power cord from the wall outlet.

(2) Replace the memory IC
Be sure to use a memory IC written with the initial data values.

(3) Power on
Connect the power plug into the wall outlet and switch the power on.

(4) Check and setting of SYSTEM CONSTANT SET
- It must not adjust without signal.
  a) Press the [DISPLAY] key and the [PICTURE MODE] key of the REMOTE CONTROL UNIT simultaneously.
  b) The SERVICE MENU screen of Fig. 1 will be displayed.
  c) While the SERVICE MENU is displayed, press the [DISPLAY] key and [PICTURE MODE] key simultaneously, and the SYSTEM CONSTANT SET screen of Fig. 2 will be displayed.
  d) Check the setting values of the SYSTEM CONSTANT SETTING. If the value is different, select the setting item with the [MENU ▲/▼] key, and set the correct value with the [MENU ◀/▶] key.
  e) Press the [OK] key to memorize the setting value.
  f) Press the [DISPLAY] key, and return to the normal screen.

(5) Receive channels setting
Refer to the OPERATING INSTRUCTIONS and set the receive channels (channels preset) as described.

(6) User settings
Check the user setting values and if setting value is different, set the correct value. For setting, refer to the OPERATING INSTRUCTIONS.

(7) Setting of SERVICE MENU
Verify the setting items of the SERVICE MENU, and reset where necessary. For setting, refer to the SERVICE ADJUSTMENTS.

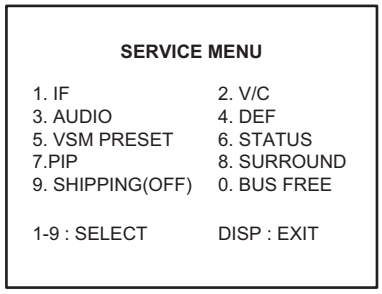


Fig.1

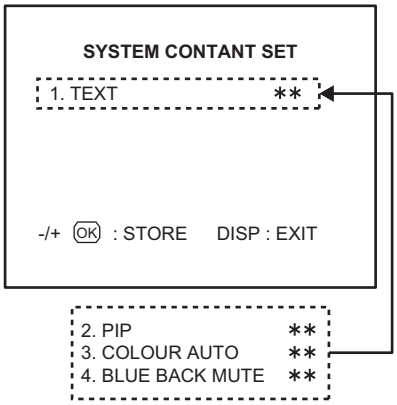


Fig.2

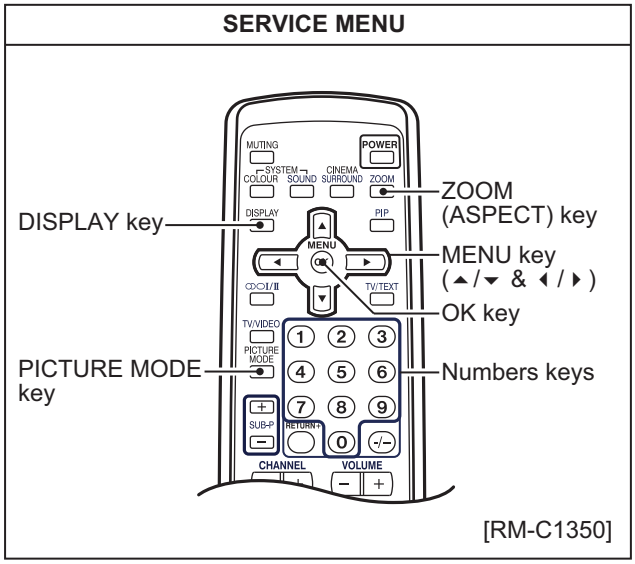


Fig.3

3.3.3 FACTORY SETTING VALUES

Setting item	Setting value	Setting item	Setting value
MAIN POWER SW	OFF	SUB POWER SW	ON
CHANNEL	PR1	DISPLAY	INDICATED
PRESET CHANNEL	See OPERATING INSTRUCTIONS.	VOLUME	10

MENU SETTING				
Setting item	**Setting value**	**Setting item**	**Setting value**	
PICTURE SETTING		**SOUND**		
PICTURE MODE	BRIGHT	BASS	Center	
CONTRAST	Center	TREBLE	Center	
BRIGHT	Center	BALANCE	Center	
SHARP	Center	CINEMA SURROUND	OFF	
COLOUR	Center	AI VOLUME	ON	
WHITE BALANCE	MID	**INSTALL**		
AI ECO SENSOR DISPLAY	OFF	LANGUAGE	ENGLISH	
PICTURE FEATURES		EDIT	PRESET CHANNEL ONLY	
DIGITAL VNR	AUTO		OTHER : NON (SPACE)	
Digi Pure	AUTO	AUTO PROGRAM	GROUP-1 : HV-34LH21	
PULL DOWN	AUTO	TELETEXT LANGUAGE	GROUP-2 : Unused	
COLOUR SYSTEM	TV : Depends on PR/CH EXT : AUTO		GROUP-3 : HV-34LH21/E	
			GROUP-4 : HV-34LH51/S	
ZOOM	REGULAR		HV-34LH71/G	
PICTURE TILT	Center		GROUP-5 : Unused	
FAVORITE CH SETTING	PRO1 : RED PRO2 : GREEN PRO3 : YELLOW PRO4 : BLUE PICTIRE MODE : BRIGHT DIGITAL VNR : AUTO WHITE BALANCE : MID Digi Pure : AUTO PICTURE EFFRCT : OFF	**FEATURES**		
		SLEEP TIMER	OFF	
		BLUE BACK	ON	
		CHILD LOCK	OFF (for all the channels)	
		CHANNEL GUARD	ALL CH : OFF	
		AUTO SHUT OFF	OFF	
		VIDEO-3 SETTING	COMPONENT	
		PIP / TWIN	OFF	Only HV-34LH51/S HV-34LH71/G
VIDEO SETTING	VIDEO STATAS : VIDEO1 PICTURE MODE : BRIGHT DIGITAL VNR: AUTO WHITE BALANCE : MID Digi Pure : AUTO PICTURE EFFECT : OFF	SUB INPUT	VIDEO1	Only HV-34LH51/S HV-34LH71/G

3.3.4 SYSTEM CONSTANT SETTING

Setting item	HV-34LH21 / HV-29VH21	HV-34LH51	HV-34LH71
1. TEXT	YES	NO	YES
2. PIP	NO	YES	YES
3. COLOUR AUTO	NO	YES	NO
4. BLUE BACK MUTE	NO	YES	NO

3.3.5 SERVICE MENU SETTING ITEMS

Setting item	Setting value
1. IF	1. VCO
2. V / C	1. RGB BLK 2. CUTOFF R 3. CUTOFF G 4. CUTOFF B 5. WDR R 6. WDR G 7. WDR B 8. BRIGHT 9. CONTRAST 10. COLOUR 11. HUE 12. SHARP 13. SC ADJ. 14. TOP BLK 15. BTM BLK 16. YUV BRIGHT 17. YUV CONT 18. YUV COLU 19. YUV COLV 20. YUV YDEL 21. YUV UVDEL 22. YCDELM
3. AUDIO	1. ERR LIMIT 2. A2 ID THR 3. SYSTEM 4. SUB BASS 5. SUB TREBLE
4. DEF	1. V-SHIFT 2. V-SIZE 3. H-CENT 4. H-SIZE 5. TRAPEZ 6. EW-PIN 7. COR-UP 8. COR-LO 9. COR-UP-S 10. COR-LO-S 11. HUE 12. BOW 13. V-S.CR 14. V-LIN

Setting item		Setting value
5. VSM PRESET	BRIGHT STANDARD SOFT	1. CONT 2. BRIGHT 3. SHARP 4. COLOUR 5. TINT
	COOL WARM NORMAL	6. WDR R 7. WDR G 8. WDR B (Do not adjust)
6. STATUS **(Do not adjust)**		1. SOFT
7. PIP [HV-34LH51/S, HV34LH71/G only]		1. HUE 2. SC ADJ 3. PIP HOR POS 4. PIP VER POS 5. YCDELS
8. SURROUND		1. CH CONFIG 2. MATRIX 3. REPRODUCT 4. CENTER MODE 5. SPATIAL EFF 6. VIRTUAL EFF 7. BASS EFFECT 8. HARM 9. HPF 10. LPF 11. AMP LIMIT 12. LEVEL ADJ 13. SWC 14. SW HPF 15. VOLUME 16. HYPER EFF 17. EFFECT MOD 18. HP GAIN

SECTION 4
ADJUSTMENT

4.1 ADJUSTMENT PREPARATION

(1) There are 2 ways of adjusting this TV : One is with the REMOTE CONTROL UNIT and the other is the conventional method using adjustment parts and components.
(2) The adjustment using the REMOTE CONTROL UNIT is made on the basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values.
(3) Make sure that connection is correctly made AC to AC power source.
(4) Turn on the power of the TV and measuring instruments for warning up for at least 30 minutes before starting adjustments.
(5) If the receive or input signal is not specified, use the most appropriate signal for adjustment.
(6) Never touch the parts (such as variable resistors, transformers and condensers) not shown in the adjustment items of this service adjustment.
(7) Preparation for adjustment.
Unless otherwise specified in the adjustment items, preset the following functions with the REMOTE CONTROL UNIT.

Item	Preset value
PICTURE MODE (VSM)	STANDARD
WHITE BALANCE	MID
DIGITAL VNR	AUTO
Digi Pure	AUTO
BASS / TREBLE / BALANCE	Center
CINEMA SURROUND	OFF
ZOOM	REGULAR
SLEEP TIMER	OFF

4.2 MEASURING INSTRUMENT AND FIXTURES

(1) DC voltmeter (or digital voltmeter)
(2) HV voltmeter
(3) Oscilloscope
(4) Signal generator (Pattern generator : PAL / SECAM / NTSC)
(5) Remote control unit

4.3 ADJUSTMENT ITEMS

■ **CHECK ITEMS**
- B1 POWER SUPPLY check
- HIGH VOLTAGE check

■ **TUNER / IF CURCUIT**
- IF VCO check

■ **FOCUS**
- FOCUS adjustment

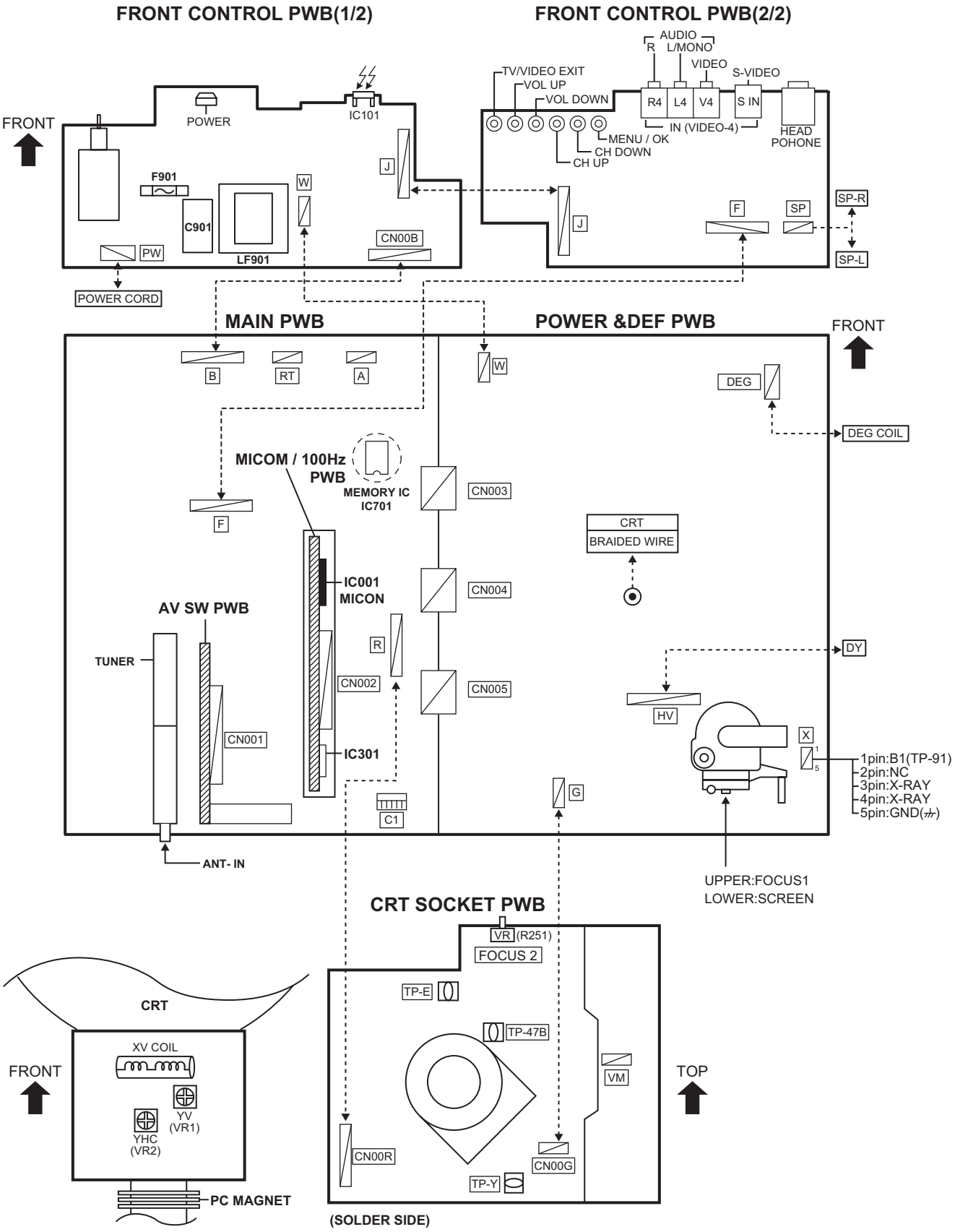
■ **VSM PRESET SETTING**
- VSM PRESET

■ **VIDEO CIRCUIT**
- WHITE BALANCE adjustment
- SUB BRIGHT adjustment
- SUB CONTRAST adjustment
- SUB COLOUR-1 adjustment
- SUB COLOUR-2 adjustment
- SUB HUE-1 adjustment
- SUB HUE-2 adjustment
- COLOUR DECODER VCO adjustment

■ **DEFLECTION CIRCUIT**
- V. POSITION adjustment
- V. SIZE adjustment
- H. POSITION adjustment
- H. SIZE adjustment
- SIDE-PIN adjustment
- TRAPEZIUM adjustment
- UPPER / LOWER CORNER PIN adjustment
- PARALLEL(TILT) adjustment
- BOW adjustment
- V. S-SHAPE CORRECTION & LINEARITY adjustment

■ **AUDIO CIRCUIT**

4.4 ADJUSTMENT LOCATION



4.5 BASIC OPERATION OF SERVICE MENU

4.5.1 TOOL OF SERVICE MENU OPERATION

Operate the SERVICE MENU with the REMOTE CONTROL UNIT.

4.5.2 SERVICE MENU ITEMS

With the SERVICE MENU, various adjustments can be made, and they are broadly classified in the following items of settings.

1.IF	This mode adjusts the setting values of the IF circuit.
2.V/C	This mode adjusts the setting values of the VIDEO circuit.
3.AUDIO	This mode adjusts the setting values of the multiplicity AUDIO circuit.
4.DEF	This mode adjusts the setting values of the DEFLECTION circuit for each aspect mode given below.
5.VSM PRESET	This mode adjusts the initial setting values of BRIGHT, STANDARD and SOFT. (VSM : Video Status Memory)
6.STATUS	It is no requirement to adjustment. **[Do not adjust]**
7.PIP	This mode adjusts the setting values of the PIP circuit. [HV-34LH51/S HV-34LH71/G only]
8.SURROUND	This mode adjusts the setting values of the SURROUND circuit.
9.SHIPPING (OFF)	This mode adjusts the setting values of the channel presettings. If you turn the SHIPPING position set ON. This setting becomes channel presetting automatically. Also you turn the TV power off, this setting become OFF position automatically.
0.BUS FREE	It is not requirement to adjustment.

4.5.3 BASIC OPERATION OF SERVICE MENU

1. HOW TO ENTER THE SERVICE MENU

Press the [PICTURE MODE] key and the [DISPLAY] key of the REMOTE CONTROL UNIT simultaneously, and the SERVICE MENU screen of Fig. 1 will be displayed.

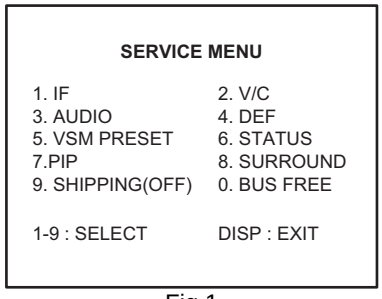


Fig.1

2. SELECTION OF SUB MENU SCREEN

Press one of [1] ~ [0] keys of the REMOTE CONTROL UNIT and select the SERVICE MENU SCREEN (See Fig. 3), form the SERVICE MENU.

1. IF
2. V/C
3. AUDIO
4. DEF
5. VSM PRESET
6. STATUS **[Do not adjust]**
7. PIP [HV-34LH51/S, HV-34LH71/G only]
8. SURROUND
9. SHIPPING(OFF)
0. BUS FREE

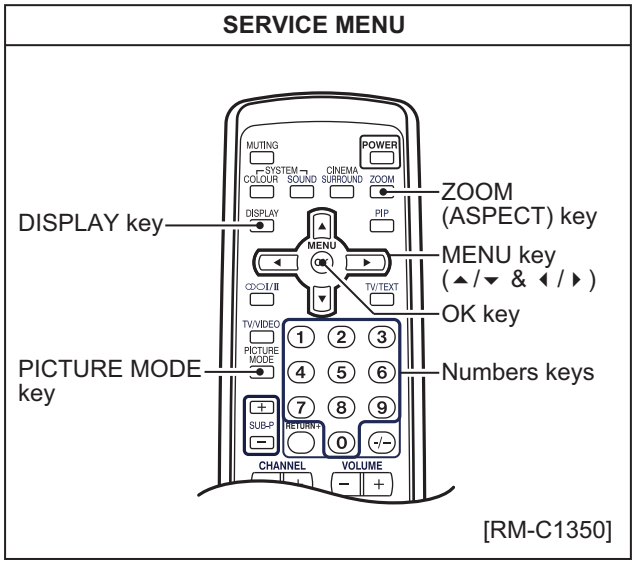


Fig.2

3. SETTING METHOD

■ 1.IF

[1. VCO] : It must not adjust without signal

(1) [1] key
Select 1.IF.

(2) [1] key
Select 1.VCO(CW).
Check the arrow position between the ABOVE REF. and BELOW REF.

(3) [DISPLAY] key
Return to the SERVICE MENU screen.

■ 2.V/C, 3.AUDIO, 4.DEF, 5.VSM PRESET, 7.PIP AND 8.SURROUND.

(1) [2], [3], [4], [5], [7], [8] key
Select one from 2.V/C, 3.AUDIO, 4.DEF, 5.VSM PRESET, 7.PIP, 8.SURROUND.

(2) [MENU ▲/▼] key
Select setting items.

(3) [MENU ◀ / ▶] key
Set (adjust) the setting values of the setting items.

(4) MENU [OK] key
Memorize the setting value.
(Before storing the setting values in memory, do not press the CH, TV, POWER ON / OFF key. if you do, the values will not be stored in memory.)

(5) [DISPLAY] key
Return to the SERVICE MENU screen.

■ 6.STATUS, 9. SHIPPING(OFF) AND 0. BUS FREE.

It is not requirement to adjustment.

4. RELEASE OF SERVICE MENU

After completing the setting, return to the SERVICE MENU, then again press the [DISPLAY] key.

4.5.4 SERVICE MENU FLOW CHART

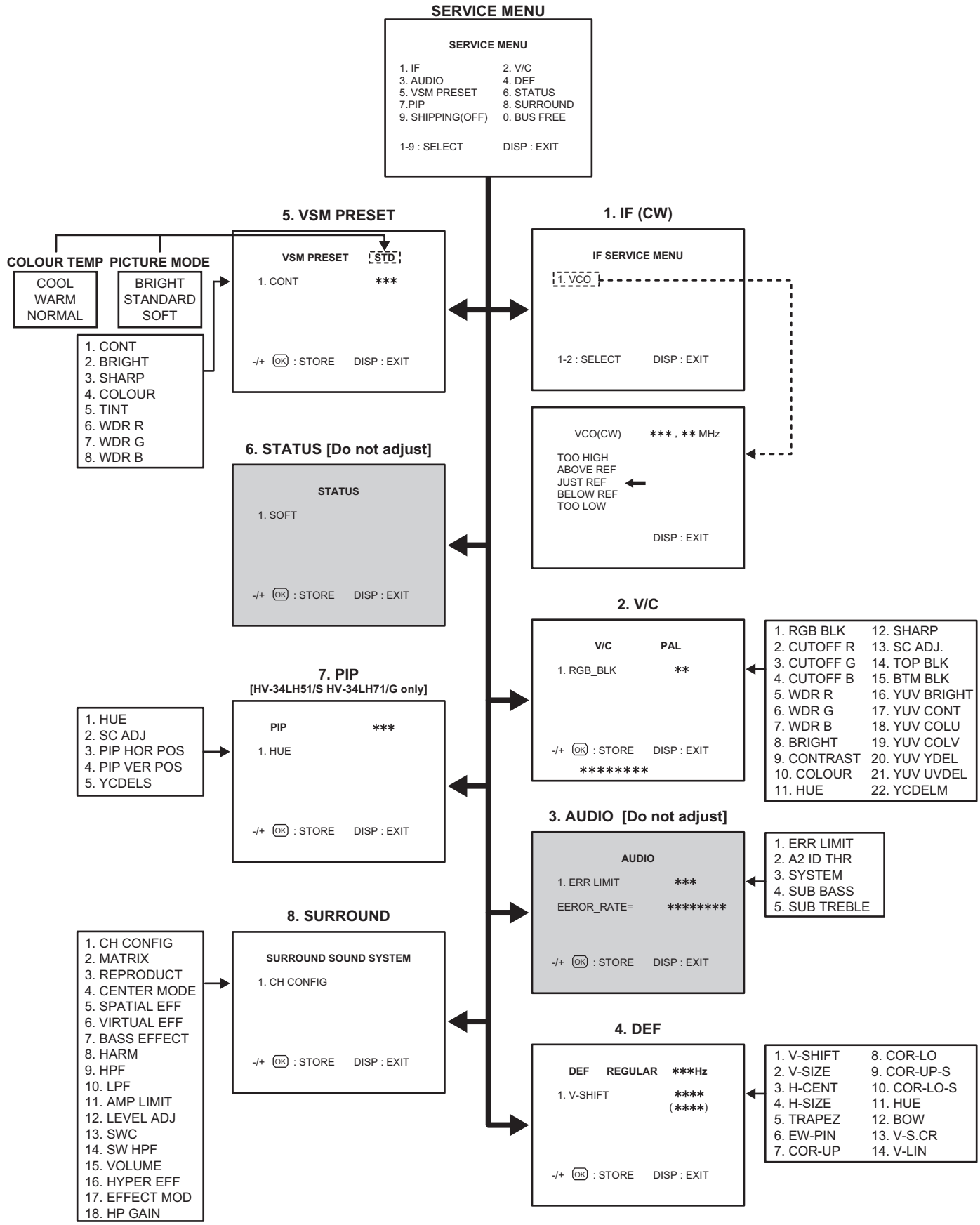


Fig.3

4.6 INITIAL SETTING VALUE OF SERVICE MENU

(1) Adjustment of the SERVICE MENU is made on the basis of the initial setting values:however, the new setting values which set the screen in its optimum condition may differ from the initial setting value.
(2) Do not change the initial setting values of the setting items not listed in "ADJUSTMENT PROCEDURE".
(3) "---" is impossible to adjust.

[2. V/C]

Setting item		Variable range	Initial setting value						
			RF / Composite Video / S-Video				Component video		
			PAL	SECAM	NTSC 3.58	NTSC 4.43	50Hz-i	60Hz-i	60Hz-p
1. RGB BLK		---	---	---	---	---	---	---	---
2. CUTOFF R		0000~0255	130	130	130	130	5	5	0
3. CUTOFF G		0000~0255	130	130	130	130	-8	-8	0
4. CUTOFF B		0000~0255	150	150	150	150	0	0	0
5. WDR R		0000~0255	160	160	160	160	0	0	0
6. WDR G		0000~0255	160	160	160	160	0	0	0
7. WDR B		0000~0255	150	150	150	150	0	0	0
8. BRIGHT	RF	-128~0127	-50	-50	-50	-50	---	---	---
	VIDEO		2	2	2	2	3	3	-7
9. CONTRAST	RF	0000~0063	42	42	42	42	---	---	---
	VIDEO		7	7	7	7	---	---	---
10. COLOUR	RF	0000~0063	48	55	30	6	---	---	---
	VIDEO		-3	0	0	0	-8	4	10
11. HUE	RF	-064~0063	---	---	2	1	---	---	---
	VIDEO		---	---	0	0	---	---	---
12. SHARP	RF	-015~0015	-5	-5	-5	-5	0	0	0
	VIDEO		0	0	0	0	0	0	0
13. SC ADJ		0000~0063	18	18	18	18	---	---	---
14. TOP BLK		0000~0255	35	35	46	46	35	46	46
15. BTM BLK		-127~0511	-15	-15	-37	-37	-15	-37	-37
16. YUV BRIGHT		-064~0063	---	---	---	---	-4	-4	-4
17. YUV CONT		0000~0063	---	---	---	---	57	57	57
18. YUV COLU		0000~0063	---	---	---	---	50	60	-10
19. YUV COLV		0000~0063	---	---	---	---	60	55	0
20. YUV YDEL		0000~0127	---	---	---	---	60	50	36
21. YUV UVDEL		0000~0127	---	---	---	---	49	49	36
22. TCDELM	RF	0000~0127	2	0	0	0	---	---	---
	VIDEO		0	0	0	0	---	---	---

Setting item		Variable range	Initial setting value						
			Compress (16:9)						
			RF/ Composite Video / S-Video				Component video		
			PAL	SECAM	NTSC 3.58	NTSC 4.43	50Hz-i	60Hz-i	60Hz-p
8. BRIGHT	RF	-128~0127	0	0	0	0	0	0	0
	VIDEO		0	0	0	0	0	0	0
9. CONTRAST	RF	0000~0063	-4	-4	-4	-4	---	---	---
	VIDEO		-4	-4	-4	-4	---	---	---
10. COLOUR	RF	0000~0063	0	0	0	0	---	---	---
	VIDEO		0	0	0	0	0	0	0

[3. AUDIO]

Setting item	Variable range	Initial setting value
1. ERR LIMIT	0000~00FF	0010
2. A2 ID THR	0000~00FF	0019
3. SYSTEM	B/G→I→D/K→M	---
4. SUB BASS	-003~0003	0001
5. SUB TREBLE	-003~0003	0000

[4. DEF]

Setting item	Variable range	Initial setting value					
		REGULAR		ZOOM		16:9	
		50Hz-i	60Hz-p	50Hz-i	60Hz-p	50Hz-i	60Hz-p
1. V-SHIFT	-32~0031	+2	-2	0	0	0	0
2. V-SIZE	-064~0063	-20	0	0	0	-33	0
3. H-CENT	-128~0127	-15	-1	-2	0	0	0
4. H-SIZE	-128~0127	+14	-1	0	0	0	0
5. TRAPEZ	-063~0064	-3	0	0	0	+3	0
6. EW-PIN	-128~0127	-17	0	0	0	+1	0
7. COR-UP	-064~0064	0	-1	0	0	+1	-6
8. COR-LO	-064~0064	-1	0	0	0	0	0
9. COR-UP-S	-064~0064	+2	2	0	0	+2	+5
10. COR-LO-S	-064~0064	+4	0	0	0	0	0
11. HUE	-128~0127	+5	0	0	0	0	0
12. BOW	-128~0127	0	0	0	0	0	0
13. V-S.CR	-064~0063	+17	0	0	0	0	0
14. V-LIN	-064~0063	-2	0	0	0	0	0

[5. VSM PRESET] [Do not adjust : All fixed]

Setting item	Variable range	Initial setting value					
		BRIGHT	SOFT	STANDARD	COOL	WARM	NORMAL
1. CONT	-16~16	16	-2	0	---	---	---
2. BRIGHT	-16~16	-2	-2	0	---	---	---
3. SHARP	-16~16	0	-7	0	---	---	---
4. COLOUR	-16~16	0	-2	0	---	---	---
5. TINT	-16~16	0	0	0	---	---	---
6. WDR R	-16~16	---	---	---	-15	21	0
7. WDR G	-16~16	---	---	---	-15	3	0
8. WDR B	-16~16	---	---	---	0	0	0

[7. PIP] (HV-34LH51/S, HV-34LH71/G only)

Setting item		Variable range	Initial setting value						
			RF / Composite Video / S-Video				Component video		
			PAL	SECAM	NTSC 3.58	NTSC 4.43	50Hz-i	60Hz-i	60Hz-p
1. HUE	RF	-128~0126	---	---	0	0	---	---	---
	VIDEO		---	---	+2	0	---	---	---
2. SC ADJ		0000~0063	17	17	17	17	17	17	17

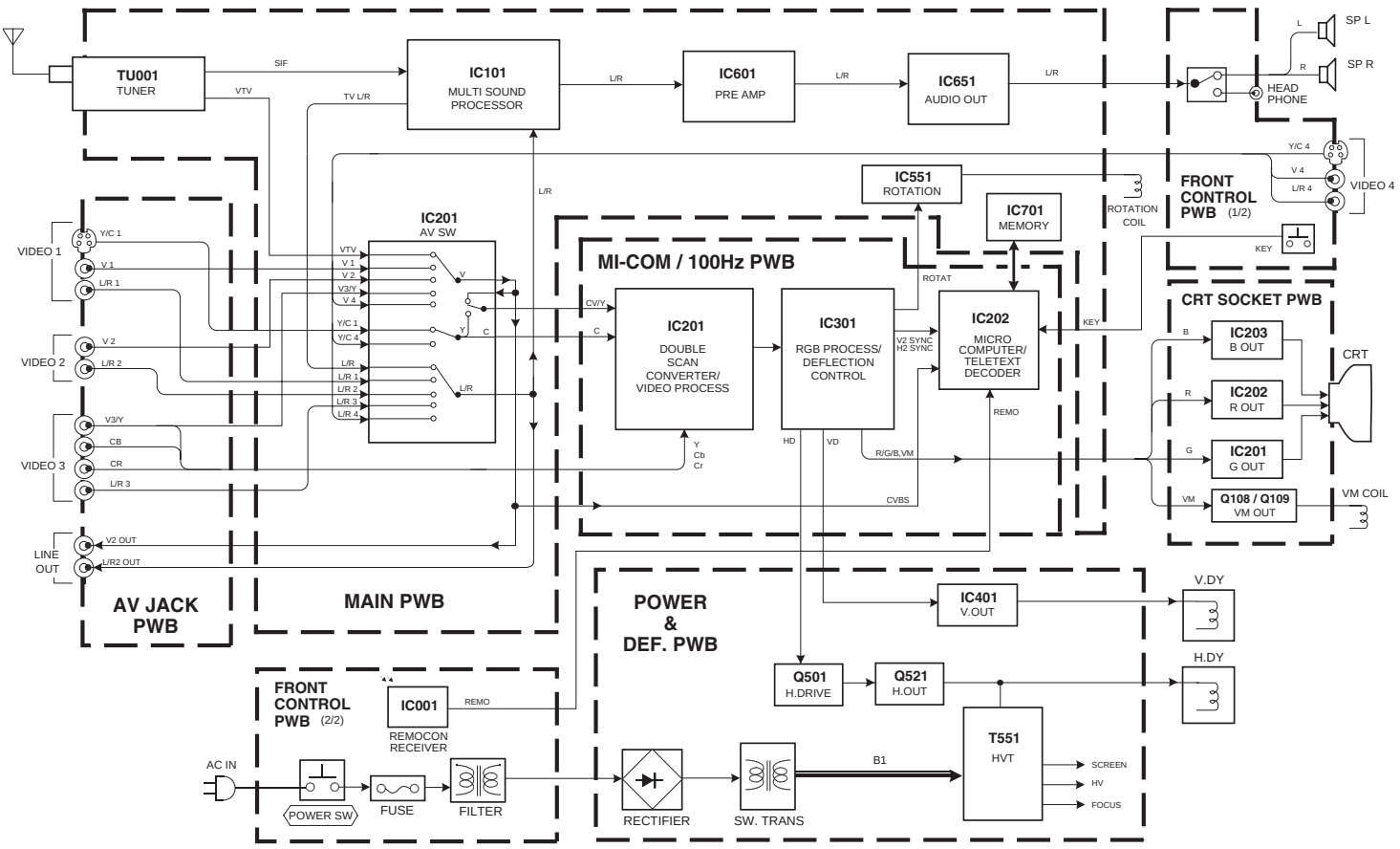
Setting item (Position display)	Variable range	Initial setting value			
		PAL / SECAM / Component 50Hz-i		NTSC3.58 / NTSC4.43 / Component 60Hz-i / 60Hz-p	
		PIP position		PIP position	
		Left	Right	Left	Right
3. PIP HOR POS	0000~2047	222	585	217	585
4. PIP VER POS	0000~1023	47	198	32	159

Setting item		Variable range	Initial setting value						
			Regular						
			RF / Composite Video / S-Video				Component video		
			PAL	SECAM	NTSC 3.58	NTSC 4.43	50Hz-i	60Hz-i	60Hz-p
5. YCDELS	RF	-016~0015	-1	-1	-1	-1	---	---	---
	VIDEO		-1	-1	-1	-1	---	---	---

[8. SURROND]

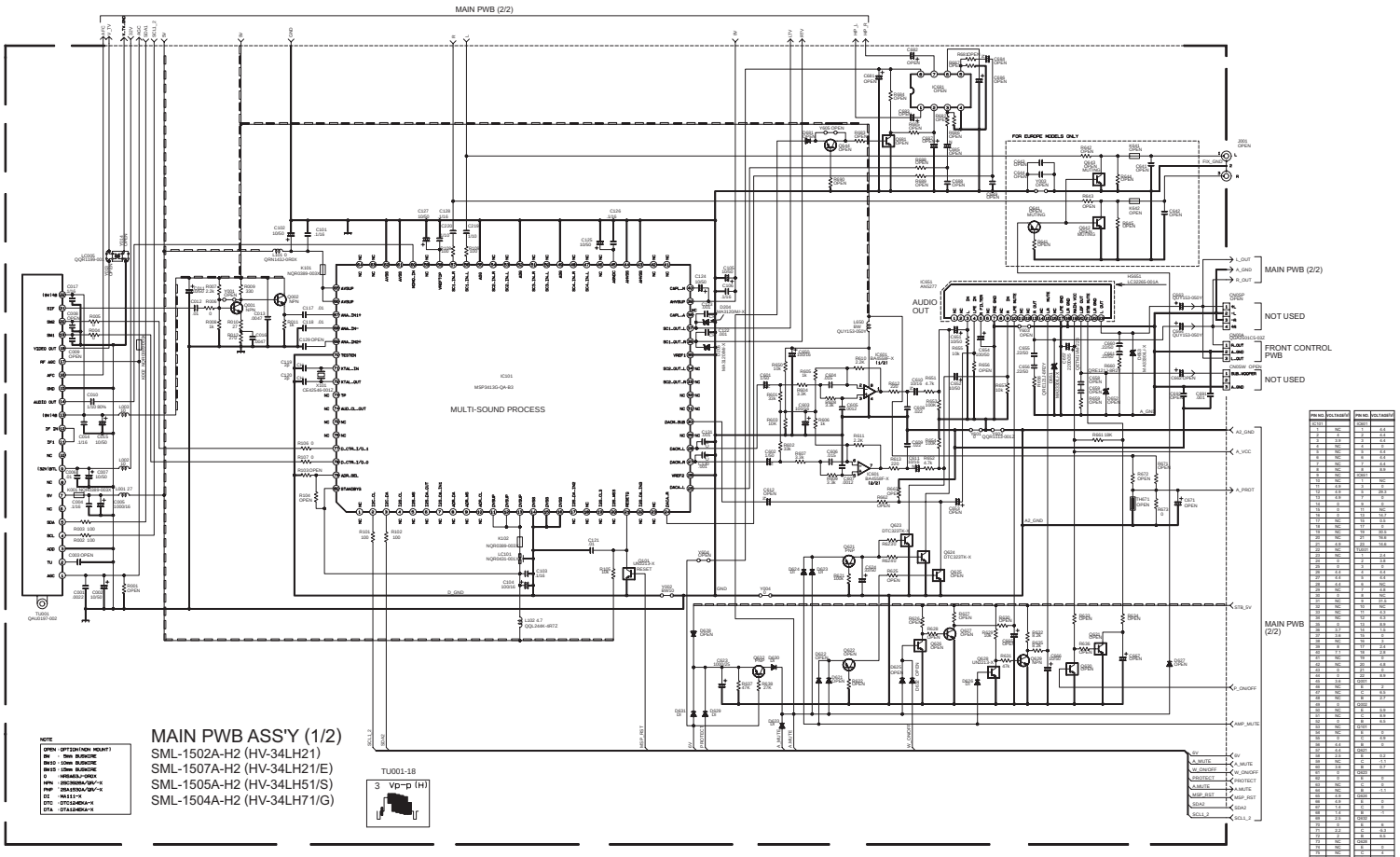
Setting item	Variable range	Initial setting value	
		LOW	HIGH
1. CH CONFIG	0000~0001	1	1
2. MATRIX	0000~0127	16	16
3. REPRODUCT	0000~0015	6	6
4. CENTER MODE	0000~0015	3	3
5. SPATIAL EFF	0000~0127	40	50
6. VIRTUAL EFF	0000~0127	35	47
7. BASS EFFECT	0000~0127	41	47
8. HARM	0000~0127	0	0
9. HPF	0002~0030	8	8
10. LPF	0005~0030	18	15
11. AMP LIMIT	-032~0000	-10	-15
12. LEVEL ADJ	-128~0012	0	0
13. SWC	0005~0040	28	28
14. SW HPF	0000~0002	2	2
15. VOLUME	0000~0003	3	3
16. HYPER EFF	0000~0127	63	63
17. EFFECT MOD	0000~0002	0	0
18. HP GAIN	0000~0008	8	8

BLOCK DIAGRAM



CIRCUIT DIAGRAMS

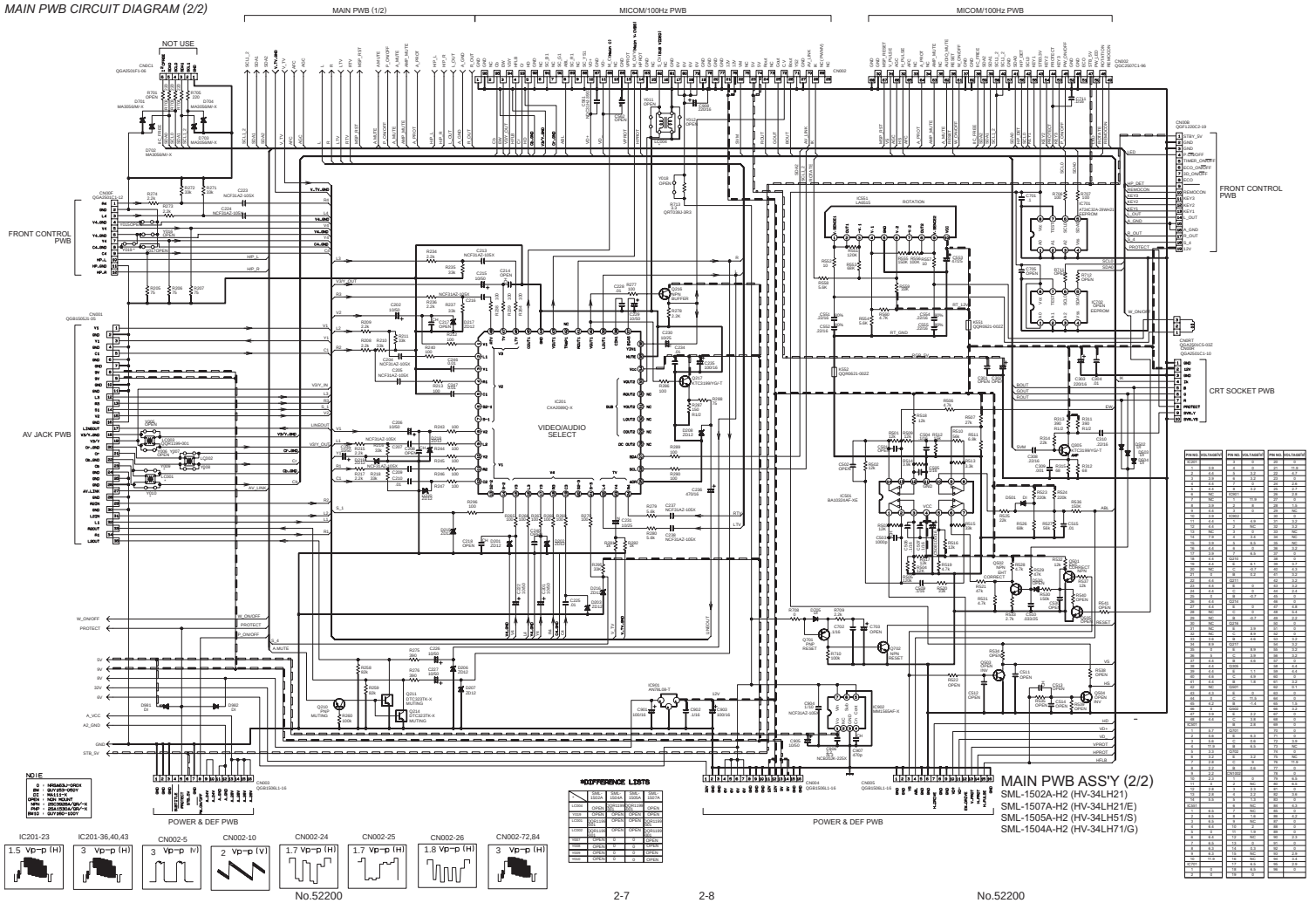
MAIN PWB CIRCUIT DIAGRAM (1/2)



MAIN PWB ASS'Y (1/2)
SML-1502A-H2 (HV-34LH21)
SML-1507A-H2 (HV-34LH21/E)
SML-1505A-H2 (HV-34LH51/S)
SML-1504A-H2 (HV-34LH71/G)

TU001-18
3 Vp-p (Hi)

MAIN PWB CIRCUIT DIAGRAM (2/2)



MAIN PWB ASS'Y (2/2)

SML-1502A-H2 (HV-34LH21)
SML-1507A-H2 (HV-34LH21/E)
SML-1505A-H2 (HV-34LH51/S)
SML-1504A-H2 (HV-34LH71/G)

IC201-23 — 1.5 Vp-p (H)

IC201-36,40,43 — 3 Vp-p (H)

CN002-5 — 3 Vp-p (V)

CN002-10 — 2 Vp-p (V)

CN002-24 — 1.7 Vp-p (H)

CN002-25 — 1.7 Vp-p (H)

CN002-26 — 1.8 Vp-p (H)

CN002-72,84 — 3 Vp-p (H)

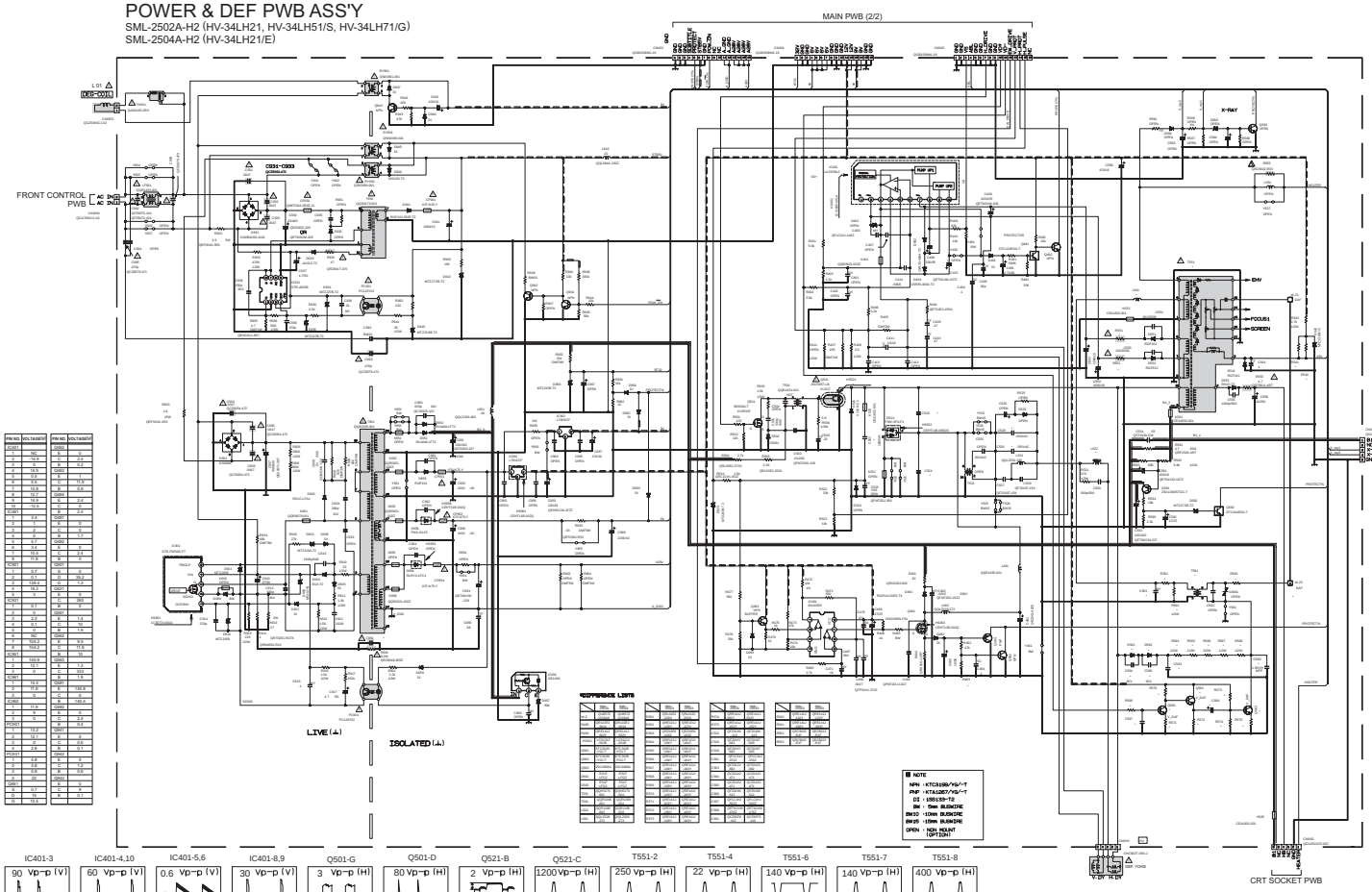
*DIFFERENCE LISTS

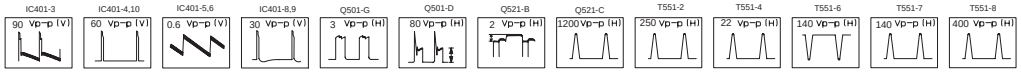
	SML-1502A	SML-1505A	SML-1504A
D2004	OPEN	DOR103B	OPEN
D2005	OPEN	OPEN	OPEN
L2300	DOR103B	OPEN	DOR103B
D2300	DOR103B	OPEN	DOR103B
R2	OPEN	0	OPEN
R68	OPEN	0	OPEN
R69	OPEN	0	OPEN
R66	OPEN	0	OPEN

POWER & DEF PWB CIRCUIT DIAGRAM

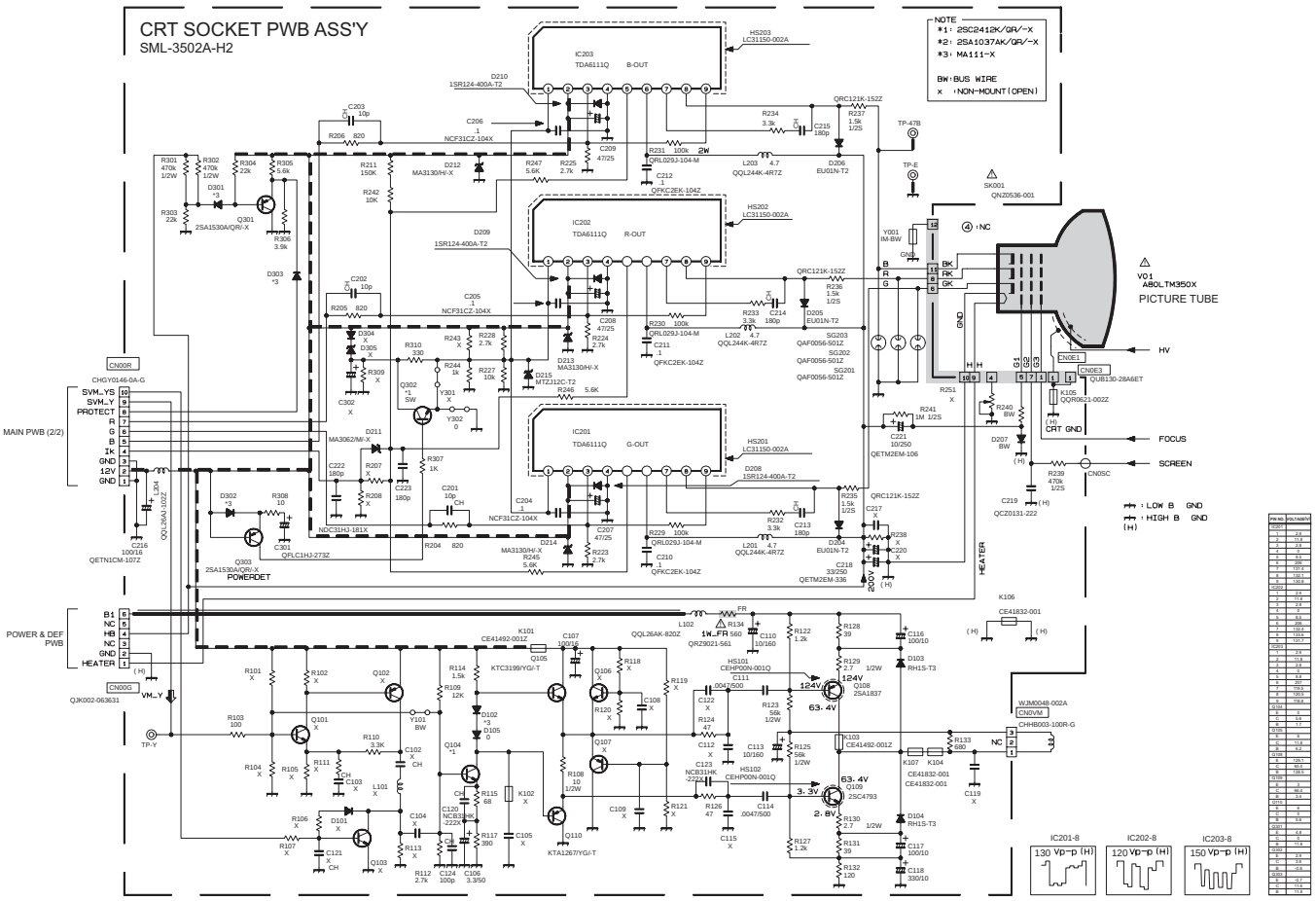
POWER & DEF PWB ASS'Y

SML-2502A-H2 (HV-34LH21, HV-34LH51/S, HV-34LH71/G)
SML-2504A-H2 (HV-34LH21/E)

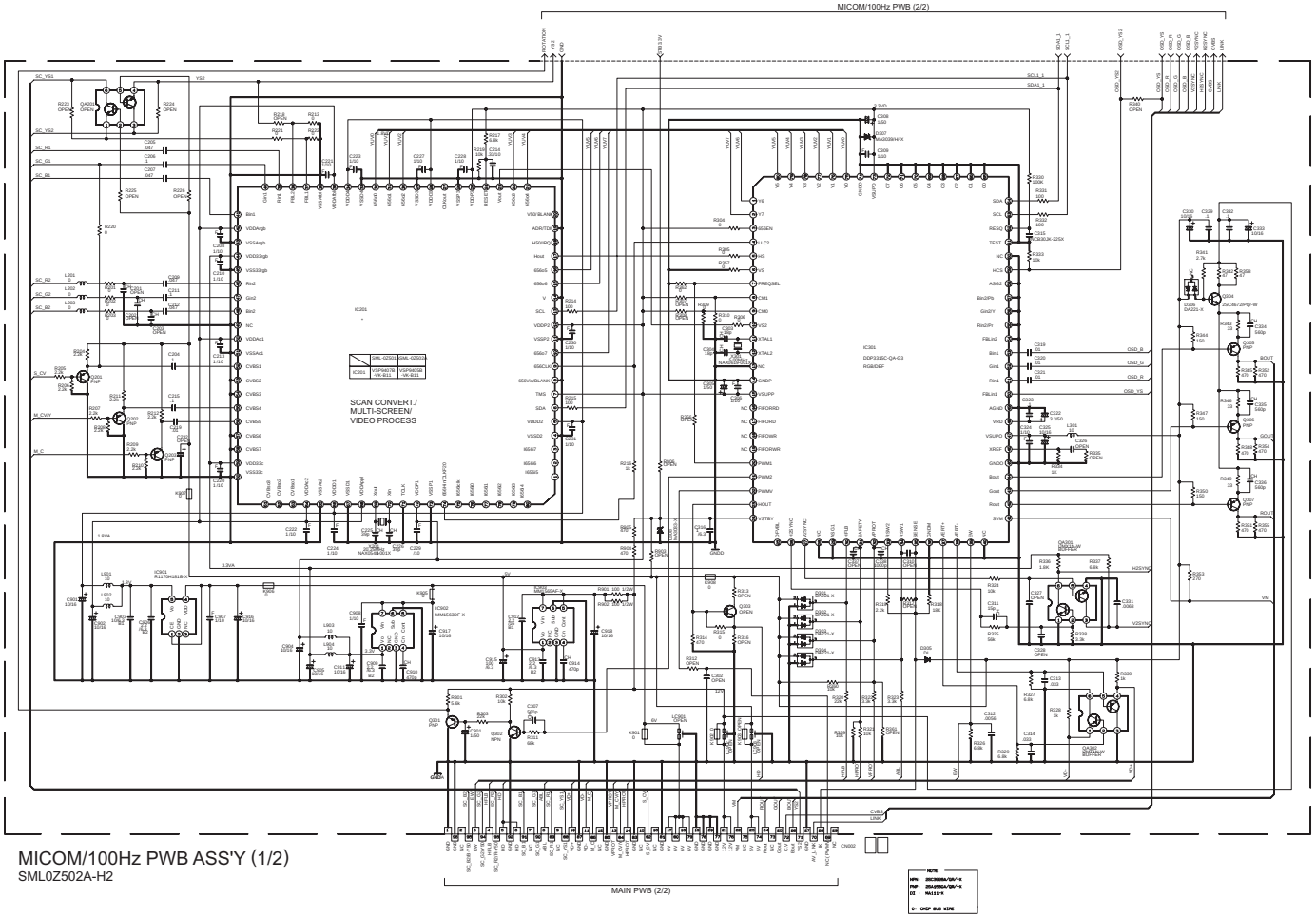




CRT SOCKET PWB CIRCUIT DIAGRAM

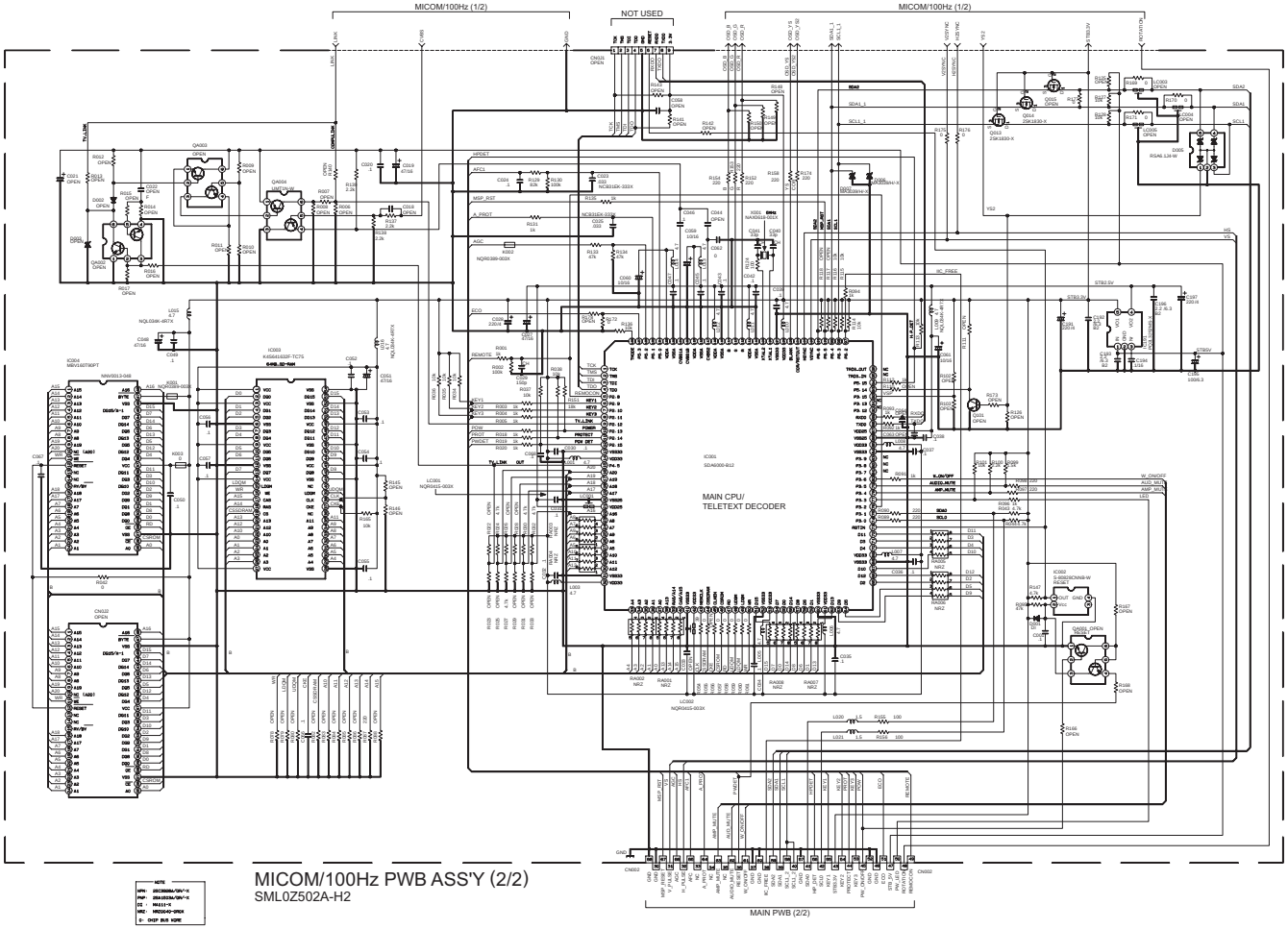


MICOM/100Hz PWB CIRCUIT DIAGRAM (1/2)



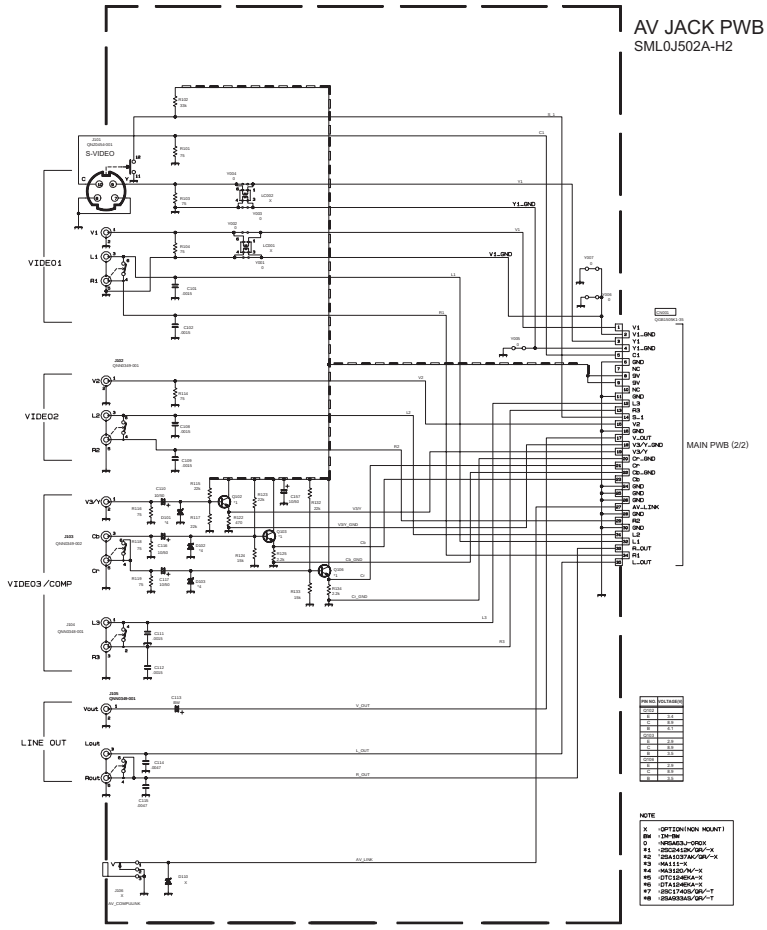
MICOM/100Hz PWB ASS'Y (1/2)
SML0Z502A-H2

MICOM/100Hz PWB CIRCUIT DIAGRAM (2/2)

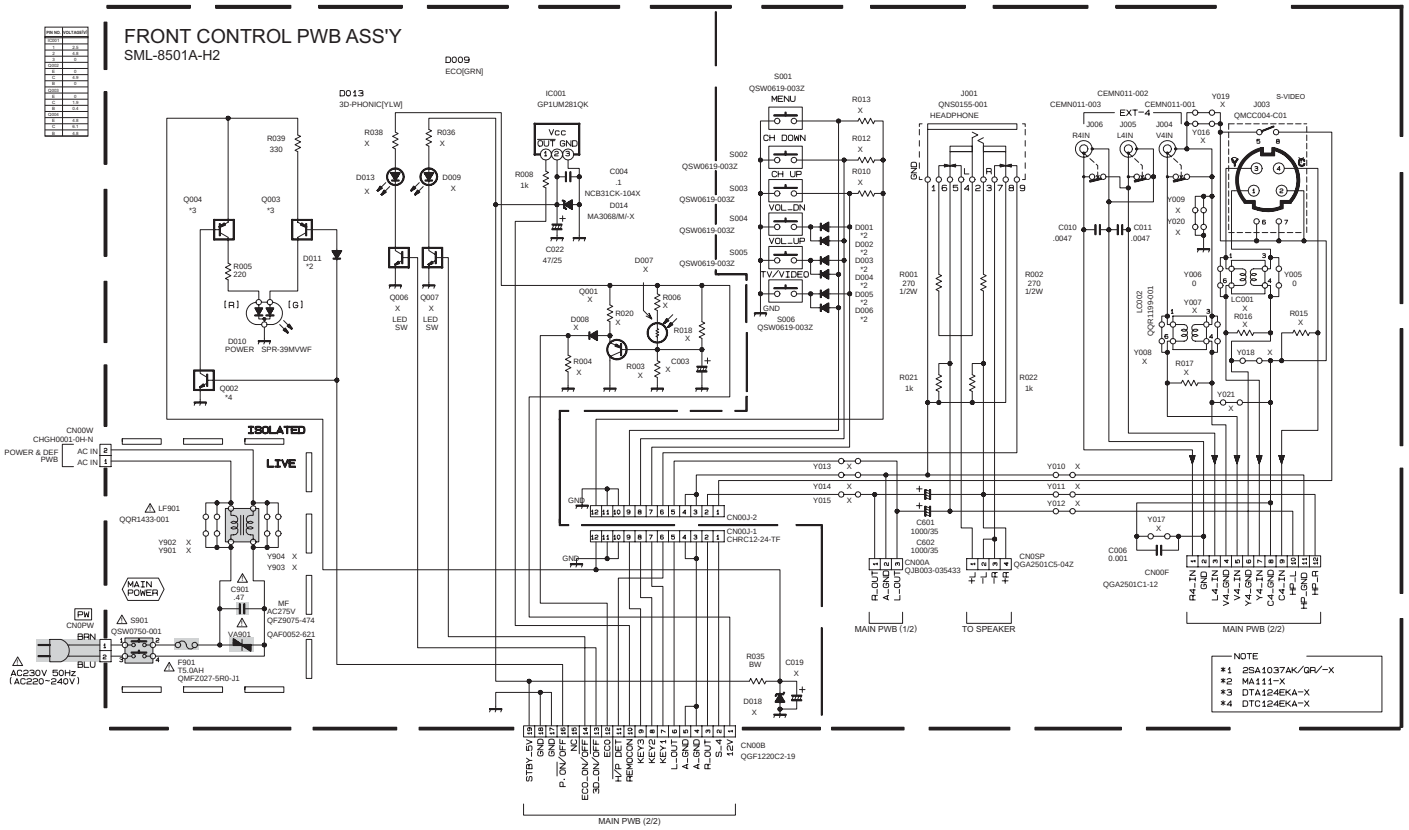


MICOM/100Hz PWB ASS'Y (2/2)
SML0Z502A-H2

AV JACK PWB CIRCUIT DIAGRAM



FRONT CONTROL PWB CIRCUIT DIAGRAM



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